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# Deep Learning: Class Expert

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COPPE/UFRJ

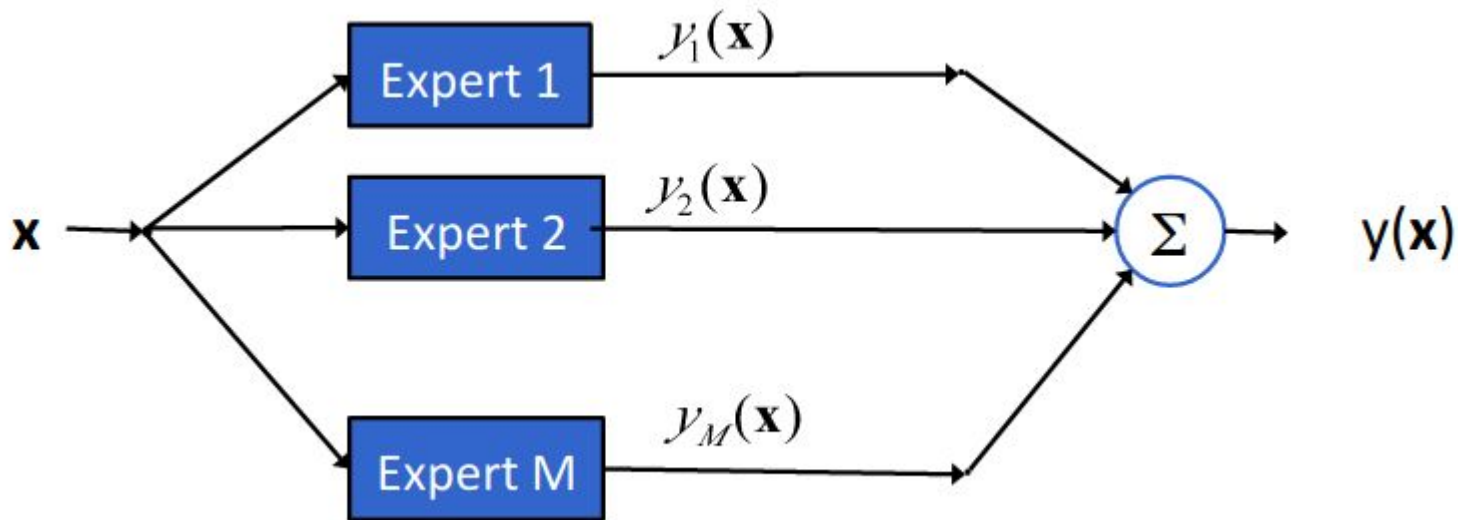
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# Introduction

- The key idea is to rely on the diversity of a set of experts (learners) that can be combined into a stronger classifier

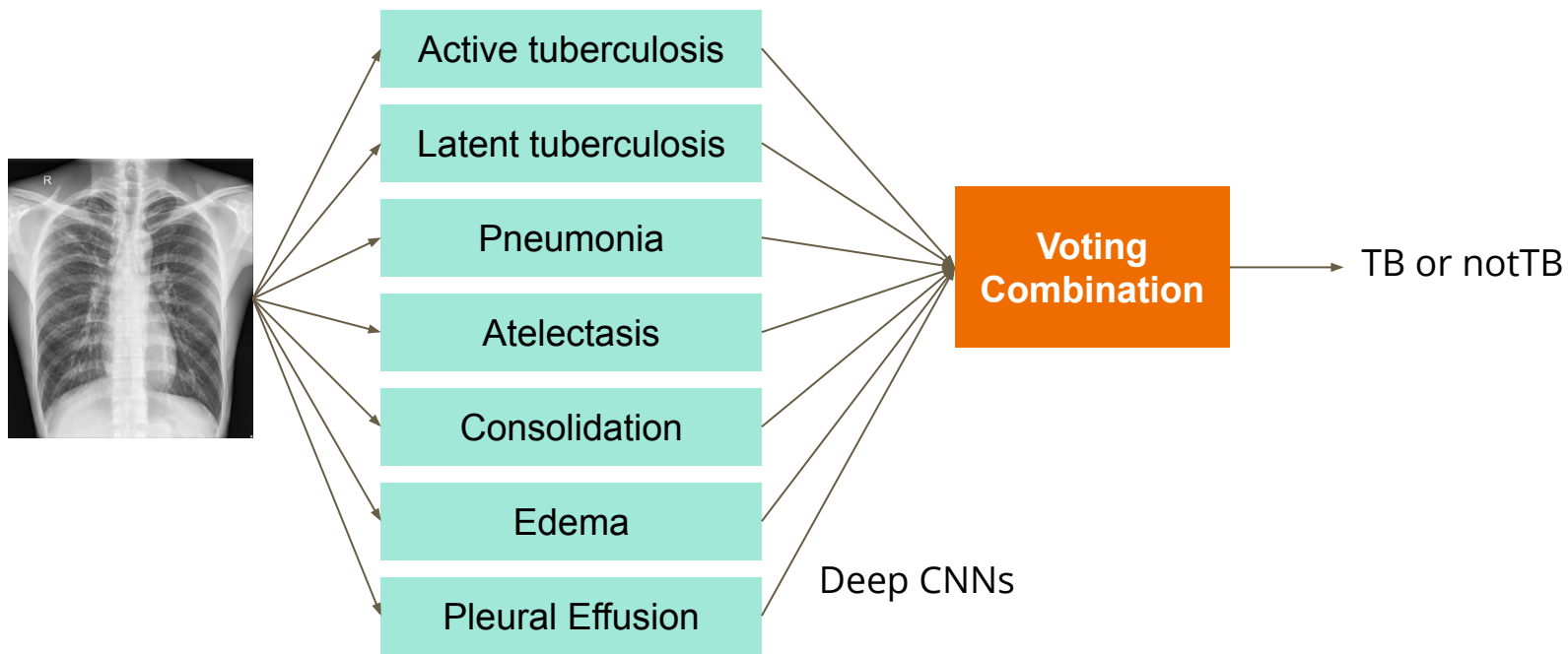


# Development

- We choose deep CNN as base learners
- We'll evaluate and combine various architectures
  - LeNet, Resnet
  - DenseNet-121, DenseNet-169, DenseNet-201
  - Inception-ResNet-v2
  - Xception
  - NASNetLarge
- Some class experts to combine
  - Active tuberculosis, latent tuberculosis
  - Pneumonia, Edema, Pleural Effusion
  - Consolidation, Atelectasis

# Development

- First proposal to ensemble (Bagging)



# Status and next steps

- We started the development of the ensemble structure
- Created 2 CNN architectures for active TB
  - LeNet and ResNet (see Cecilia's presentation)
  - Shenzhen dataset
- Shenzhen, Montgomery and Indian datasets don't have labels on diseases other than TB. Stanford (CheXpert) dataset has it, but not TB
- Next steps:
  - Need to evaluate better the individual CNNs created
  - Create the others architectures and others diseases experts
  - Build the ensemble and evaluate the performance